CRYPTO:
IS IT TOO MUCH PROTECTION?

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October, 6, 1993

Risk Exposure

When 25-80 percent of a firm's cash flow is on line, technology risk becomes business risk.

Many business managers are unaware of the range of IT-related risks to which a firm is exposed.

They learn about most of them only through disaster.

Major Risks

Two major areas of exposure are:

- **Security**

  a growing problem in terms of vulnerability to criminal theft and fraud and accidents of leakage information.

- **Network Management**

  involves a different form of risk that requires a highly complex technical infrastructure to protect the firm.

Computer Crime

A 1986 survey of 100 accountants and 90 mid-level Information Technology professionals at a conference on computer security found that three-quarters believed that most electronic thieves are caught by accident.

Quotation

“ This [the un-detection of electronic thieves] is a startling admission of the vulnerability of the accounting controls, audit trails and programming documentation for which their professionals [accountants, and IT managers] are responsible. ”

Criminal Activity

No one knows the true level of computer crimes-sucessfull crimes may avoid detection entirely-

study of those detected finds they involved far greater sums of money than other white collar crimes.

Hackers & Crackers

- Hackers
  - computer pioneer
  - sixties generation
  - became rich, got authority
- Crackers
  - new generation
  - alienated
  - digital criminals

Information

- Information can't be stolen
  - property laws for tangible objects
  - raw data
  - ownership obsolete
- Information can be copied
  - perfect copy
  - original intact

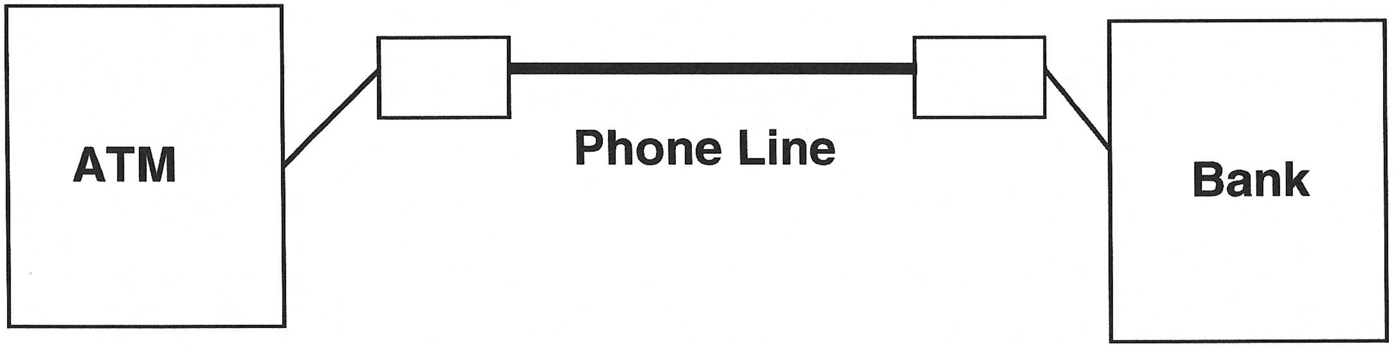
Money and Computer Crime

- Richard Nixon
  - removed gold standard
  - money became bits and bytes
  - stopped using reality as "acid test"
- Society is digital
  - easy to change
  - good programmer: no fingerprints

Cracking the Bank

- ATM (Automated Teller Machines)
  - all banks use them
  - security nonchalant
  - vulnerable system
- On-Site vs Off Site
  - On-Site protected
  - Off-Site convenience no protection

ATM Data Path



- Customer uses card and PIN
- Data transmit over phone
- Banks OKs transaction
- Banks send authorization over phone

ATM Exposure

- Phone lines unprotected
- No encryption of data over phone lines
- Gas stations and grocery stores easy targets
- Personal account information vulnerable
- Inside protection, but none outside
- Losses covered to avoid bad publicity
- Court transcripts/newspaper accounts provide necessary information to criminals

Safe Communications

“ Telecommunications security is a source of increasing concern for individuals, corporations, and governments. As the flow of information increases, so does the likelihood of exposure to wrong parties. ”

Race is ON

- Worlwide competition heating up
- Traditional spies turn to industrial espionage
- 60% daily business communications over telephone lines
- Much information is sensitive and propriety

CLIPPER CHIP

- Data Encryption for business
- Hardware device
- Government sponsored development
- Government endorsed
- Law Enforcement support
- Constitutional questions

Who Holds the Keys?

- Two keys for encryption and decryption
- Government holds one
- Private firm holds other
- Algorithm is classified SECRET
- Are they secure?
- Subject to Government leaks?
- Is it accepted by public?

Constitutional Questions

- Can we trust the Government?
- Will criminals register?
- Are privacy rights violated?
- Will Clipper become law?
- Is Clipper best technology?
- Can government administer?
- Does it stop here?